

What is claimed is:

- 1        1. An experimental animal having corneal epithelial damage, wherein said corneal  
2              epithelial damage is caused by contacting an ocular cornea of said animal with a  
3              water-absorbing material and thereby generating a difference in osmotic pressure  
4              between an inside and an outside of the ocular corneal epithelium cells.
- 1        2. The experimental animal of claim 1, wherein said corneal epithelial damage is dry eye.
- 1        3. The experimental animal of claim 1, wherein the water-absorbing material is contacted  
2              either with a whole area of the ocular cornea or a part thereof, or with a pupil area  
3              of the ocular cornea.
- 1        4. The experimental animal of claim 3, wherein said corneal epithelial damage is dry eye.
- 1        5. The experimental animal of claim 3, wherein the experimental animal is a non-human  
2              mammalian or a fowl.
- 1        6. The experimental animal of claim 3, wherein the experimental animal is rabbit.
- 1        7. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2              least one material selected from the group consisting of a polyol, a salt, an amino  
3              acid, a peptide and a water-soluble polymer.
- 1        8. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2              least one material selected from the group consisting of a saccharide, an alkali  
3              metal salt and an alkali earth metal salt.
- 1        9. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2              least one saccharides selected from the group consisting of glucose, maltose,  
3              sucrose, fructose, dextran and starch.
- 1        10. The experimental animal of claim 3, wherein said water-absorbing material is used in  
2              a physical state selected from the group consisting of powder, solution, gel, jelly  
3              and tablet.

- 1       11. The experimental animal of claim 3, wherein the ocular cornea is covered with a  
2           water-impermeable membrane or film having a hole or holes therein, the  
3           membrane or film being placed on the ocular cornea so that the hole or holes in the  
4           membrane or film comes on around the pupil area thereof, and said water-  
5           absorbing material is contacted with the ocular cornea through said hole or holes of  
6           the membrane or film.
- 1       12. The experimental animal of claim 11, wherein said corneal epithelial damage is dry  
2           eye.
- 1       13. The experimental animal of claim 11, wherein the experimental animal is a non-  
2           human mammalian or a fowl.
- 1       14. The experimental animal of claim 11, wherein the experimental animal is rabbit.
- 1       15. The experimental animal of claim 11, wherein said water-absorbing material includes  
2           at least one material selected from the group consisting of a polyol, a salt, an amino  
3           acid, a peptide and a water-soluble polymer.
- 1       16. The experimental animal of claim 11, wherein said water-absorbing material includes  
2           at least one material selected from the group consisting of a saccharide, an alkali  
3           metal salt and an alkali earth metal salt.
- 1       17. The experimental animal of claim 11, wherein said water-absorbing material includes  
2           at least one saccharide selected from the group consisting of glucose, maltose,  
3           sucrose, fructose, dextran and starch.
- 1       18. The experimental animal of claim 11, wherein said water-absorbing material is used  
2           in a physical state selected from the group consisting of powder, solution, gel, jelly  
3           and tablet.
- 1       19. The experimental animal of claim 3, wherein the water-absorbing material is  
2           contacted with the ocular cornea through a water-permeable or semi-permeable  
3           membrane or film.

- 1       20. The experimental animal of claim 19, wherein said corneal epithelial damage is dry  
2                     eye.
- 1       21. The experimental animal of claim 19, wherein the experimental animal is a non-  
2                     human mammalian or a fowl.
- 1       22. The experimental animal of claim 19, wherein the experimental animal is rabbit.
- 1       23. The experimental animal of claim 19, wherein said water-absorbing material includes  
2                     at least one material selected from the group consisting of a polyol, a salt, an amino  
3                     acid, a peptide and a water-soluble polymer.
- 1       24. The experimental animal of claim 19, wherein said water-absorbing material includes  
2                     at least one material selected from the group consisting of a saccharide, an alkali  
3                     metal salt and an alkali earth metal salt.
- 1       25. The experimental animal of claim 19, wherein said water-absorbing material includes  
2                     at least one saccharide selected from the group consisting of glucose, maltose,  
3                     sucrose, fructose, dextran and starch.
- 1       26. The experimental animal of claim 19, wherein said water-absorbing material is used  
2                     in a physical state selected from the group consisting of powder, solution, gel, jelly  
3                     and tablet.
- 1       27. A method of screening or evaluating a medicine for treatment or improvement of a  
2                     corneal epithelial damage, comprising the steps of:  
3                     contacting an ocular cornea of an experimental animal with a water-  
4                     absorbing material and thereby generating a difference in osmotic  
5                     pressure between an inside and an outside of the ocular corneal  
6                     epithelium cells to produce corneal epithelial damage ;  
7                     administering a medicine to the damaged ocular cornea ; and  
8                     evaluating the therapeutic effect thereof on the corneal epithelial damage.
- 1       28. The method of claim 27, wherein said corneal epithelial damage is dry eye.

- 1       29. The experimental animal of claim 27, wherein the experimental animal is a non-  
2                  human mammalian or a fowl.
- 1       30. The experimental animal of claim 27, wherein the experimental animal is rabbit.
- 1       31. The experimental animal of claim 27, wherein said water-absorbing material includes  
2                  at least one material selected from the group consisting of a polyol, a salt, an amino  
3                  acid, a peptide and a water-soluble polymer.
- 1       32. The experimental animal of claim 27, wherein said water-absorbing material includes  
2                  at least one material selected from the group consisting of a saccharide, an alkali  
3                  metal salt and an alkali earth metal salt.
- 1       33. The experimental animal of claim 27, wherein said water-absorbing material includes  
2                  at least one saccharide selected from the group consisting of glucose, maltose,  
3                  sucrose, fructose, dextran and starch.
- 1       34. The experimental animal of claim 27, wherein said water-absorbing material is used  
2                  in a physical state selected from the group consisting of powder, solution, gel, jelly  
3                  and tablet.
- 1       35. The method of claim 27, wherein the water-absorbing material is contacted either  
2                  with a whole area of the ocular cornea or a part thereof, or with a pupil area of the  
3                  ocular cornea.
- 1       36. The method of claim 35, wherein the ocular cornea is covered with a water-  
2                  impermeable membrane or film having a hole or holes therein, the membrane or  
3                  film being placed on the ocular cornea so that the hole or holes in the membrane or  
4                  film comes on around the pupil area thereof, and said water-absorbing material is  
5                  contacted with the ocular cornea through said hole or holes of the membrane or  
6                  film.
- 1       37. The method of claim 35, wherein the water-absorbing material is contacted with the  
2                  ocular cornea through a water-permeable or semi-permeable membrane or film.
- 1       38. The method of claim 27, wherein said method further includes the steps of:

2 staining the damaged area of the ocular corneal epithelium either  
3 (a) after administration of the medicine, or  
4 (b) before and after administration of the medicine; and  
5 evaluating the therapeutic effect of said medicine, based on change in the  
6 stained area of the ocular corneal epithelium.

1 39. The method of claim 27, wherein the medicine is an eye drop.

1 40. The method of claim 38, wherein the medicine is an eye drop.

1 41. A medicine useful for treatment or improvement of a corneal epithelial damage,  
2 which is obtained, selected or evaluated by the method of claim 27.

1 42. A medicine useful for treatment or improvement of a corneal epithelial damage,  
2 which is obtained, selected or evaluated by the method of claim 38.

1 43. A method of making an experimental animal having corneal epithelial damage,  
2 comprising the step of contacting an ocular cornea of said animal with a water-  
3 absorbing material and thereby generating a difference in osmotic pressure  
4 between an inside and an outside of the ocular corneal epithelium cells.